The Life and Death of Government Pension Plans[1]

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INTRODUCTION

Readers of Keynes' General Theory know about the financial arrange-
ments of the father of the English poet Alexander Pope (1688-1744).
"Pope's   father, retired from business, carried a chest of guineas...to
his villa in Twickenham and met his household expenses from it as required."
Pope Sr., being a man of wealth before the development of modern financial
markets and institutions, faced a number of problems.

He had no safe store of his wealth. The guineas, I presume minted
of gold, undoubtedly possessed secure purchasing power. At the same time,
Mr. Pope's wealth was subject to the risk of fire, earthquake, flood and
robbery. He had no practical way to buy his way out of these risks through
insurance.

Mr. Pope could not collect returns on his wealth without making loans
which would expose his wealth to the additional risk of default. Finally,
Mr. Pope had no way to know how much to spend each month, because, like
all of us, he did not know how long he will live. If he spent too much,
he might run out of money. Should he spend too little, he might lose out
on enjoyment and leave more guineas than he intended to his heirs.

Modern institutions found in developed market economies have evolved
to deal with each problem the late Mr. Pope has encountered. Large finan-
cial institutions inspected and often guaranteed by the government safe-
guard wealth from fire and robbers. (Alas, the purchasing-power protec-
tion guaranteed by the gold guineas seems to be gone forever!). The
institutions hold earning assets, thus retirement savings can be credited
with interest, dividends and capital gains. No individual needs to worry
about outliving his income. Because individual life-spans continue to be
uncertain, but aggregate mortality is predictably stable, annuity sellers
pool the risk and remove it from the individual. The best news of all is
that you do not even have to be rich like the late Mr. Pope. Millions of
individuals employed by businesses large, medium and small in Western
industrial countries save for their retirement through private pension
plans as described in this paragraph.

Unfortunately, not everyone is so lucky as to have a stable, long-
term employment record leading to a comfortable retirement through the
private, employer and/or union sponsored, pension system. Countries

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provide either universal pensions, or government sponsored contributory pensions, and social provisions for those without adequate retirement income from the usual sources. It is this set of arrangements which may be described as government pension plans. This paper deals with the financing of the latter.

Pension plans have been invented to support us when we can no longer work. We expect them to be efficient, fair, and above all, reliable. This paper raises questions about the efficiency, equity and reliability of government pension plans.

Pension plans collect contributions from persons at work and pay benefits, called pensions, to persons who withdrew from the labour force on account of advanced age. Death benefits are paid to the heirs of pension plan members. Contributions, whether made by employer or employee, are usually related to the earnings of the employee. The amount of the pension is determined either by the amount of money to the employee's credit at retirement, or by a formula relating the pension to the employment and earnings history of the plan member. The former are known as money purchase or defined contribution plans, the latter as formula or defined benefits plans. Another form of a pension plan is a level payment benefit plan, which disburses the same number of dollars per month to each retired member. These definitions are appropriate whether the sponsor of the plan is a government or a private organization.[2]

In either case, benefits may be paid from the current revenues of the sponsor, known as a pay-as-you-go (hereafter PAYGO) arrangement. Alternatively, a dedicated fund may be accumulated and, usually but not always,[3] kept segregated from the other assets of the sponsor to meet the expected benefit payments. The latter practice is known as funding, (hereafter FUN). In the real world, some plans are partially funded. PAYGO is frequently resorted to by governments by virtue of their powers of taxation including their access to the money press. It is discouraged or prohibited with respect to private sponsors, on account of the risk it imposes on pension plan members. FUN is, therefore, usually required of private plans. The existing economic literature goes beyond the question of risk to plan members, and raises questions about the social consequences of PAYGO versus FUN financing with respect to government sponsored pension plans.

Without attempting to duplicate here the existing surveys of this literature, let us start with a review of some major issues.[4] The original case in favour of the social desirability of PAYGO stipulates a world with no storable output,[5] and presumes the existence of persons desirous of deferring consumption to a time when they cannot work. Providing an institutional framework for supporting today's old by the work of today's workers, in return for a promise that today's workers when old will be supported by tomorrow's workers and so on, is clearly preferable to the waste, charity or starvation implicit as alternatives in the Samuelson model.[6] In the world, defined by that model, there are problems. An increase in the proportion of the retired to the number of workers, without an offsetting increase in labour productivity, will cause a drop

in the living standard of at least some members of society, along with the attendant social conflict on distribution.[7] Moreover the Samuelson arrangement provides for no satisfactory beginning or end to the scheme of "pure consumption loans." The first generation of old workers to participate, receives income support without having had to sacrifice. The last generation incurs the sacrifice of having supported the preceding generation, but receives nothing.

The world we live in is much different from that stipulated in Professor Samuelson's model. We have capital markets and capital goods with positive rates of return. Curiously, we can observe PAYGO plans sponsored by the governments of the major industrial countries, including those of the United States, the United Kingdom, and Canada. Apparently, one is currently in the process of being established in the People's Republic of China.[8] It may be of interest to try to explain why such arrangements are introduced, continued, expanded, and may be abandoned in the future.

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FUN requires the accumulation of savings in a fund, and the retention of (some) savings through the life of the pension plan. PAYGO does not. The central issue is, whether we can normally expect to observe positive net social returns from a real pool of capital over time with FUN? If the answer is in the affirmative, these benefits to society are lost with PAYGO.

There is a basic question of fact to be settled. Is there an additional pool of capital created as a result of the funding decision alone? The answer can be positive only if funding causes no corresponding reduction in saving or increase in consumption. The most likely agent to undertake additional consumption-type spending is the government entrusted with managing the pension fund. If it uses the pension accumulation as a source of additional bond-financing for incremental consumption-type spending, the potential benefits of funding are jeopardized. What occurs, is that the spending choices of contributors are decreased, and those of the government are increased. If the government opted to keep its total spending unaffected, but reduced tax-collections by the amount of the additional financing available, the spending choices of contributors would once more be decreased, but the corresponding choices of the non-tapped taxpayers would increase. The net long-term effect on the volume of real capital formation would depend on the values of the propensities to invest in capital, physical, or human, of pension-fund contributors, the government, and the untapped taxpayers. These magnitudes are potentially knowable, but are in practice very difficult to ascertain.

Another sector where incremental dissaving might take place is among pension plan contributors, where the knowledge of funding might lead to an increased sense of security and well-being, hence a decreased need to have savings on hand, just in case the government pension plan fails to meet its obligations. Still another reason for decreased savings may operate through the Ricardo effect. With a funded plan, there will be

lower taxes expected for the future, hence some sums hitherto being saved to pay future taxes, may now be shifted into consumption. Once more, the parametric values are very hard to establish. My guess, is that the incremental dissaving by pension plan contributors on these counts is negligible.

The conclusion emerging from the preceding paragraphs is that the existence of a fund is a necessary, but not a sufficient condition for capital formation, but that capital formation can take place if the government, as the fund manager, so desires. In order to ascertain the incremental effect of funding on capital formation, the dollar value of whatever resources the government channels that way, has to be reduced by the amount that would have gone to capital formation, had the net addition to the reserves of the fund remained with the contributors instead. It is very unlikely, that all contributors would invest all extra disposable income in real capital formation, therefore government action is likely to have a net positive effect. Precise magnitudes should be difficult to obtain.

The role of government as an investment manager, or as an employer of investment managers, is crucial. In the private sector, the services of the investment manager are evaluated on the performance of his portfolio in comparison with other portfolios operating under similar constraints. The option of the manager is to assume a degree of risk, within a range of permissible risks, in hope of an attractive return. The higher the risks he assumes, the more variable the possible range of outcomes. The manager's success or failure depends, apart from a large dose of luck, on the risk he allows his portfolio to be exposed to, in relation to the portfolios managed by his competitors. Government, as an investment manager, has no competitors. To force a change of investment managers, voters may have to turn out the government.

Even without an election, a government will normally sack the investment managers if their results are embarrassingly bad, but is likely to defend them as prudent if the returns are positive but mediocre. As a result, government managers are likely to assume a minimum of risk, and aim for low but positive returns. The temptation to invest in bonds issued by the government is great. The corresponding temptation for the government treasury to use the pension fund as a captive buyer for special bond issues that no private financial institution might wish to hold, and will thus cause minimal interference with their other borrowing in the financial marketplace, is even greater. For the investment managers assets not traded in the marketplace represent very attractive holdings, because fluctuations in capital values can be ignored for bookkeeping purposes, and with no effort, the investment can be counted upon to yield its nominal rate through the years. All this might be seen as smooth debt management. Allowing pension funds to be invested in this way, however, can only lead to real capital formation at one remove by the government treasury, if it makes explicit decisions to use the proceeds of the bonds sold to the government pension fund to that particular end.[9] Funding alone, thus, does not make for additional capital formation.

A related and equally vexing problem arises where the government pension fund is seen as a source of bail-out funds for failing enterprises, as the sponsor of social experiments, and as the source of funds for political friends, or for share purchases in corporations whose management policies the government wishes to influence. In all the cases listed here, the investment is undertaken to obtain benefits for groups other than the pensioners: even if real capital formation does take place, it is certain that, in the sense of lost opportunities, the private returns to the pensioners will suffer. It is easy enough to assert that the social rate of returns on the capital created should be greater than the marginal rate of time preference of the pension plan savers, for the particular investment programme to make economic sense. Unfortunately, it is difficult to obtain the actual magnitudes of all these rates in any particular case. Generally, there is no mechanism to ascertain that the distributive ends sought do not, in the end, diminish the social returns that could have been obtained if the government had concentrated on its fiduciary responsibility to the pensioners.

The conclusions to this disgression are, that funding of a public pension plan need not lead to added capital formation unless the government makes a specific effort to do so. There also exist, as described above, special hazards of the suboptimal management of pension fund assets by the government. In what follows, I shall assume that a government when it opts for FUN, intends to contribute to the growth of real income in the economy, and will undertake the required steps to do so. When that is not the case, the conclusions in this paper applicable to FUN do not hold.

One important note of caution is in order at this point. The discussion here applies exclusively to the effects of funding only on capital formation. It is assumed, that the decision to pay a given level of benefits has been independently undertaken and announced, therefore changes in personal savings contingent on the emergence of "social security wealth" are not considered here.10

Once the institution of a government sponsored pension plan with a given level of benefits to its members has been decided, will FUN or PAYGO provide the lower social costs? Costs to whom?

Let us deal with the distributional question first, both by class of taxpayer and over time. Governments usually possess the legal power to raise taxes in any manner. Abstracting from the murky issues of tax shifting and incidence for the moment, governments at a point of time can, in principle, tax the consumption, savings, income and wealth of any legally definable group. Similarly, the pension costs may be financed (partly) by foregoing any other expenditure programme with a known, or knowable, distribution of benefits. Thus distribution of the burden at a point of time is, whatever the government decides it to be. As a practical matter, most government pension plans seem to be financed by a levy on labour income.11

Distribution over time is another matter. Here, we must distinguish between the time-pattern of the burden within the life of a particular

generation, and a redistribution of the cost between generations. Assuming that the pension plan is financed by a levy on labour income, it is clear that whatever the burden is, each affected generation will bear it during its working life, as it is also clear that benefits accrue to each affected generation after retirement. With PAYGO, much as in the Samuelson model, persons retiring soon after the inception of the plan receive a bonus from the community.12 Inevitably, once more in a manner similar to the Samuelson world, because all social arrangements tend to terminate after some time, there will have to be a generation that will pay but not receive. Barring calamities, with FUN every generation should pay for its own pension, in the limiting case, every individual.13

Let me conclude this part of the paper by a social cost comparison between FUN and PAYGO. For a given level of real pension benefits,14 and administrative costs, PAYGO requires an equal amount of tax revenue, plus the collection costs and social losses inherent in collecting that revenue.15 With FUN, part of the cost is defrayed by the returns on the asset portfolio, therefore taxes and social losses are lower. Thus, FUN costs less. In addition, whatever the extra pool of capital brought about by FUN over the PAYGO alternative, it produces not only returns to the plan but also tax revenue for the government16 and employment in the economy. In societies where the government is expected to provide public resources for job creation, the employment created by FUN saves potential government expenditure. No doubt about it, considerations of government finance reject PAYGO and uphold FUN in paying for a pension plan with a given level of benefits and administrative costs.17

The next section of this paper explores the dynamics of pension plans. The budget identity of any pension plan, PAYGO or FUN, is

$$F = C + E - A - P$$

where F = the cash flow of the pension plan
C = the amount of contributions collected
E = earnings on the assets held by the plan
A = costs of administering the plan
P = payouts in benefits.

If we compute the present value of each term over the life of any pension plan, F must be equal to zero over the life of the plan.

For a pure PAYGO plan, the value of F for each year equals zero. Since it has no assets, E = 0, thus C = A + P for each year.

For a FUN plan, F may have any value of a particular year.

Assume that a group of persons become members of a new pension plan at a point of time. After that, no new members are admitted. Initially, contributions will flow in, with little or no benefit payments. F is positive, and a fairly rapid rate of asset accumulation comes about. As the plan members age, more qualify for drawing benefits, fewer contribute,

but increasing total earnings on the accumulating assets dampen the maturing effects on cash flow. Eventually, F is bound to decline, to zero and subsequently as benefits paid grow and current contributions fall, to negative values. In this last phase, the plan for the closed group liquidates assets to pay its obligations, until both disappear. Figure 1, showing the value of the integral of F over time, illustrates the life cycle of a FUN plan for a given membership admitted at time 0.

One special case of a FUN plan where F = 0 for some time (hereafter quasi-PAYGO) is shown in Figure 2.[18] For the sake of illustration, let
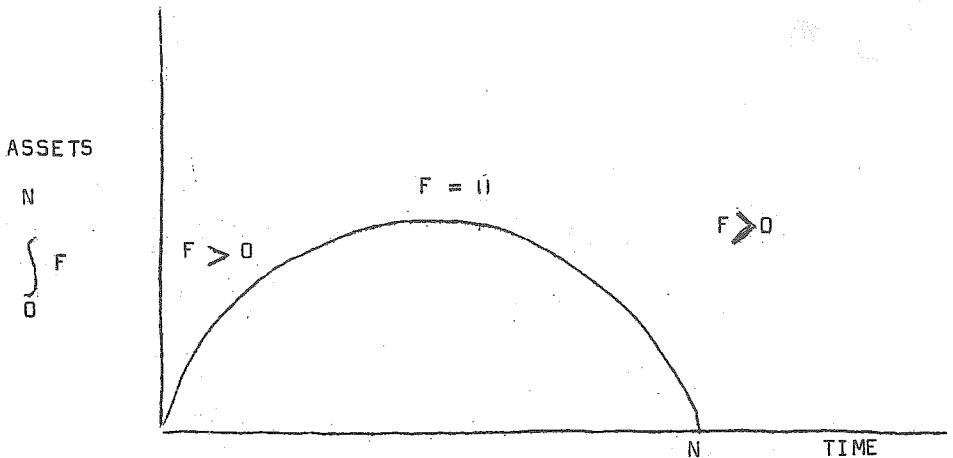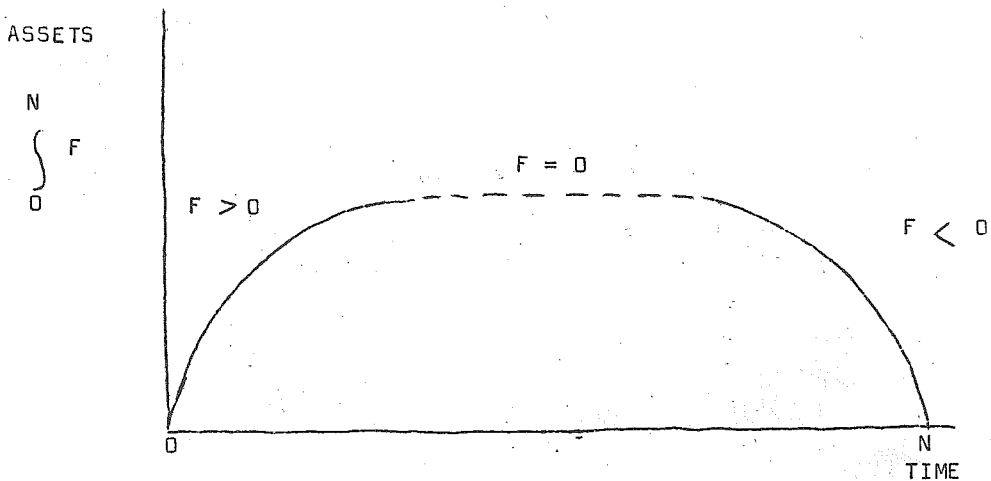

FIGURE 1

FIGURE 2

us monetarily assume that selected persons are continually admitted to the plan, so that following an initial and inevitable accumulation phase, the annual dollar amount of contributions and earnings on assets are just enough to pay the administrative costs and benefits for the year. It is intuitively obvious that, either by a set of unlikely circumstances or by legislation, a similar result may be obtained, without a selective admittance policy to the plan. Government pension plans, after all, are usually universal and, with a few exceptions, compulsory.

What is sometimes referred to as a "steady state population" is neither a necessary nor a sufficient condition for $F = 0$, unless some very restrictive assumptions on income distribution or contribution rules are introduced. In the real world, the earnings of those approaching retirement tend to be higher than the pay of the young. Assuming contributions to be in proportion to labour income, the transfer of a high-income contributor to the list of beneficiaries requires more than the current contributions of one additional young member to keep $F = 0$. The stipulated result will come about if the plan population is in steady state, and every plan member progresses on the same age wise time-path. Alternatively, a steady-state population will keep $\overline{F} = 0$ if each member pays a head tax as a premium, and receives a level-payment pension as a benefit. Either of these conditions is unlikely to be met in practice, thus $F = 0$ may hold with a rising, falling, or stable population in the plan. All it takes in principle, is for the demographic changes to be offset by changes in the contribution rates. This condition can, within practical limits, be met by legislation, in effect creating something which at first blush might look like a PAYGO plan.

With given benefits, $F = 0$ can be legislated by varying contributions to a FUN-type plan much as in the case with PAYGO. The question is, why would any govvernment wish to do so ?

A government may wish to avoid asset liquidations when $F < 0$, because the assets of the pension plan portfolio may be viewed as non-fungible in the near term. If that is the case, the plan cannot allow F to turn negative.[19] Non-fungible assets arise because of lack of foresight, bad luck, or the practice of permitting problems that are not yet visible to devolve on one's successors. Once the problem is discovered and has to be faced, raising contributions so that $F = 0$, may be seen as the least painful solution.[20] It is clear that there is a double standard in many jurisdictions on the fiduciary conduct of private pension plan trustees on the one hand, and of governments on the other. This double standard may be defended on the grounds that the obligations of the government pension plan may always be met from taxes. In other words, the safety net under a government-sponsored FUN plan is the legal possibility for converting it to quasi or real PAYGO.[21]

A quasi-PYAGO situation with potentially fungible assets is socially preferable to a PAYGO plan with no assets. First, current returns on the assets continue to alleviate the tax burden. Secondly, the assets may continue to yield social benefits. Finally, there may be funds available to pay obligations to the last participating generation, should circumstances force discontinuation of the plan.

As outlined above, a FUN plan converts easily into PAYGO (or quasi-PAYGO) by adjusting contribution rates so that F = 0 for each year. The conversion of a PAYGO plan to FUN is no more difficult in principle, but may involve considerable burden on those in the labour force immediately following the implementation of the decision to convert. For one generation, contributors will have to support their elders under PAYGO, while simultaneously saving for their own retirement under the newly introduced FUN. At first blush this burden might make conversion prohibitive, but socially it need not be any more onerous than to build up FUN, de novo, in a society in which the aged are being supported anyway.

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One way to lighten the load, which is considered but not advocated here, is to repudiate the promise of support to the last PAYGO generation. It is, of course, not nice to repudiate outright. Substantially, the same end may be attained by observing only nominal obligations in a period of significant price increase.

A basic weakness of the "social contract" justification of PAYGO policies is the failure to recognize that any generation of workers can, at no economic cost to itself, repudiate their obligations, and apply the resources saved to a FUN plan towards their own retirement. Repudiation will look particularly attractive when (1) the economy is not expected to yield higher returns to the repudiators than the maintenance of PAYGO rules, and (2) conditions generally expected to prevail make it likely that the next generation will repudiate PAYGO, with dire consequences to today's workers in their own retirement.[22] Conversely, PAYGO plans are more likely to be initiated or expanded when long-term prosperity is expected.[23] Note that conditions being experienced at any point of time bear on the creation or destruction of PAYGO arrangements only in so far they influence expectations.

The above discussion is conducted in terms of a stylized world of distinct generations with implicitly equal life-spans. In the real world, individuals of over-lapping ages participate in the political process. Repudiation is likely to be popular with persons who perceive themselves as having to contribute to social security more in the future than they expect to get out of it, particularly if they have no aged relatives to support should repudiation carry. A detailed discussion, in the Appendix to this paper, argues that the age of the voter alone is not sufficient to predict his stand on repudiation. Given the real world of politics, repudiation as any other single issue, is unlikely to win, except as part of a larger agenda.

At this point it is not unreasonable to ask why voters prepared to dispossess a generation of their elders would stop at repudiating PAYGO. Why not confiscate the assets in a FUN plan? One answer centers on the vagueness of claims to social security wealth. Citizens believe that they have a good title to their own income and wealth. To meet PAYGO obligations, taxpayers are forced to surrender money to the tax-collector

in return for worthless tax-receipts. In the case of FUN, there are no conflicting claims to the same property, the premium-collector hands back a passbook with a growing balance. A fully funded and vested plan, like Singapore's Central Provident Fund, provides as much legitimacy as can possibly be created to the claims of its members.

CONCLUSIONS

Let me summarize the major conclusions in this paper:

(1) Funding is a necessary, but not a sufficient condition for government pension plan savings to be translated into real capital. Specific asset management decisions are required to attain that end.

(2) For a given level of benefits, a funded government pension plan providing additional real capital is less costly and as between generations, more equitable, than pay-as-you-go financing.

(3) It appears to be easier to undertake a change from a funded plan to pay-as-you-go arrangement than the other way around.

(4) Repudiation of pay-as-you-go arrangements is not only possible, but probable, given unfavourable expectations. The age structure of the voters alone cannot be relied upon to be a predictor of the outcome of a repudiation vote.

APPENDIX TO "THE LIFE AND DEATH OF GOVERNMENT PENSION PLANS"

A rational voter, when confronted with a choice of maintaining or repudiating a pension plan, can be expected to act in accordance with his perceived interests. In plain English, if he expects to gain by repudiation, he will vote that way. The actual formula required to make the decision is not too complex.

$$X = \sum_{t=0} d_t P_t (S_t B_t - C_t - T_t)$$

Where

d_t = the discount factor appropriate to year t

P_t = the subjective probability of living through year t

S_t = the subjective probability of actually receiving the promised benefit in year t

B_t = the promised benefit for year t

C_t = the required contribution to the plan in year t

T_t = expected transfers from others (relatives) contingent on the non-existence of the plan in year t

X is what may be called the subjective net present value of the plan to the particular voter. When X is positive, the rational voter will cast his ballot against repudiation (hereafter X-positive voters), if X is negative he will vote for repudiation (hereafter X-negative voters). Let me turn to a brief discussion of some variables in the formula.

The discount factor, d_t, is meant to reflect the rate of time preference of the voter, as risk elements are taken care of elsewhere in the vormula. Since a separate value of d has to be calculated for each year, it is possible for the voter now to stipulate varying rates of time preference for himself in the future.

The subjective probability of living through a particular year, P_t, may be very different from the objective probability obtainable from mortality tables. (This may be tested casually, in contacts with undergraduates, some of whom seem to believe that they will never get old). For most persons, the value of P_t should fall to Zero at some point with extensions of the time horizon.

The probability of receiving the promised benefits, s_t, is likely to be the most volatile term in this formula. Its constituent elements include expectations of general institutional stability, the outcome of this particular vote, as well as of possible subsequent ballots on repudiation, and expected compensation for future inflation. Simply because there is more scope for change with the passage of time, generally, the value of s_t should fall as the time horizon is extended.

The term T refers to the consequences of repudiation on the individual, arising from his family relationships. For example, his children may be expected to make a contribution to his household, should his promised pension disappear. If he expects to receive family support, the sign of this term should be negative. Should he expect to have to provide financial support to others, T should be positive. (The sign of T is counterintuitive at first sight). Naturally, with increasing age of the voter, T should decrease in value, and turn negative. With a receding time horizon, T should diminish in significance, as other arrangements are made for retirement.

The simplest case occurs when values of d generally reflect prevailing long-term interest rates, values of p generally approximate mortality experience, the value of s generally approximates unity and values of T are small. If the plan itself is actuarially fair, younger voters should be indifferent, older persons should be X-positive and vote against repudiation. Where the plan penalizes younger contributors, but has positive subjective net present value to those approaching retirement age, the division of X-positive and X-negative voters should depend on the demographics involved.

The outcome of a repudiation vote becomes a great deal less certain when the stringent conditions stipulated fail to hold. Obviously, widely believed scenarios of an imminent doomsday will influence citizens not to

make another contribution to any project with a long-term pay-off, including pension plans. (In terms of our formula, each of d, p and s would approach zero). Persons whose rate of time preference is higher than the risk-adjusted rate of return earned in the plan, may be X-negative in any plan. More realistic and important than those two cases would be concerns about long-term social stability, through external influences and/or demographic changes. (What would be your values for s if you happened to be in 1987 a resident of South Africa, Hong Kong or Israel?). It is easy to visualize stable differences in s values between citizens of different countries, but that is of less immediate concern, because institutions in each country will probably, sooner or later, reflect the prevailing conditions. What is of more interest here, is a sharp change, sudden or gradual, in expectations reflected in a radical alteration of s values. If the formula is correct, a change in perceived s values can counterbalance the demographics in influencing the proportions of X-negative and X-positive voters. This is the major conclusion in this Appendix.

The power to define the form and content of referendum questions provides a great deal of control over the outcome of the vote. The valuation formula at the beginning of this Appendix assumes implicitly a yes or no answer to the question of terminating the pension plan in very short order, with no stated termination arrangements. This approach should make for a larger than minimum number of X-positive voters, thus providing an environment where chances of repudiation are not maximized. Given the specifics of any particular situation, it should not be difficult to design a set of termination arrangements to maximize, or to minimize the number of X-positive or X-negative voters.

FOOTNOTES

1. Research assistance and general inspiration by Hanna Zowall is gratefully acknowledged. Helpful comments on a previous draft were received from Mukul Asher, David Brown, W.R. McGillivray, Dan Usher, and members of the research seminars at the Institute of Southeast Asian Studies, and the Department of Economics and Statistics, National University of Singapore. All those listed are innocent of errors that may remain.

2. The sponsor of a pension plan is the organization ultimately responsible for its solvency. Sponsors may include governments, employers, trade unions, insurance companies and cooperative societies.

3. The notable exception is the practice of book reserves financing of corporate pension plans in the Federal Republic of Germany.

4. Surveys include Low and Toh (1986), Thompson (1983), Aaron (1982), and Nektarios (1982).

5. Samuelson (1958).

6. Samuelson's arrangement is referred to in the literature as a "social contract." It seems odd that infants and those yet to be born are held to be parties to any contract to which they clearly did not consent, particularly since they bear so much of the burden.

7. For a review of the literature on this particular conflict in the Samuelson world, see Asimãkopulos and Weldon (1968).

8. The Straits Times of April 21, 1987 carries the following item: "Beijing starts new pension scheme": Beijing—China is implementing a national pension scheme because the population is ageing rapidly and the current system puts an unfair burden on older companies, the China Daily said yesterday.

   Under the scheme, companies pay a percentage of employees' wages to a local labour insurance department which will pay pensions to all retired people. Before, firms were directly responsible for their own pensioners.

   The paper said this caused financial problems for companies set up a long time ago which had more pensioners than active workers.

   The paper said that by the year 2000 China would have 31 million retired people, or 17 percent of the urban workforce, and by 1990, 19.8 million retired, or 14 percent of the workforce.

   The scheme will cover most of China's cities and countries by the end of next year. -- Reuter.

9. There cannot be an automatic presumption that investment by a private pension plan leads to new capital formation either. Normally, through the complex linkages of the financial marketplace, attractive projects should find financing. At the same time, governments can conceivably crowd out other borrowers, without providing assurances that new capital formation will be the final result.

10. A good review of the issues arising from "social security wealth" is found in Aaron (1982).

11. Assuming, that in a broad context, labour markets are competitive, it is reasonable to assert in line with standard economic theory, that in the long-term equilibrium the wage cost to the employer will be equal to the value of the marginal product for each class of labour. The customary division between the "employee share" and "employer share" may thus viewed as irrelevant in the long-run. It all comes out of wages and salaries.

12. This turned out to be the case with United States Social Security, the Canada Pension Plan, and its twin, the Quebec Pension Plan. Even though none of these were supposed to be PAYGO at their inception, each eventually evolved towards that direction.

13. The limiting case is a funded and vested plan. Even here, the contribution and/or the benefit structure may be designed to provide cross-subsidies to preferred classes of retirees from the other members of the plan. See, for example, "Augmented Benefits", International Labour Organization (1985), p. 113.

14. To assure every person of a decent retirement income seems to be one possible and reasonable goal for a government pension plan.

15. Some of the numbers estimated for the incremental social cost of raising tax revenue are alarmingly high. Usher (1982) estimates the social cost of a dollar of tax revenue at 2.2 dollars, Usher (1986) at 1.8 dollars, Browning and Johnson (1984) at 3.49 dollars for redistributive expenditure. If these estimates bear any semblance to reality, much more attention should be devoted to the social cost of redistributive programmes.

16. Taxes on corporate profits have to be usually paid, even where dividends in the hands of pension funds are not taxes as such.

17. Some students of welfare economics may question to this conclusion, on the grounds that in principle the total social utility lost through time in a particular FUN plan may possibly be greater or less than in the requisite PAYGO system. Since I know of no universally accepted method of measuring social utility through time, I am prepared to leave the onus for establishing their facts to those who may wish to argue that case.

18. As customary in the literature, smooth curves are drawn in the diagrams, even though their real-life counterparts may be otherwise.

    Note that the time-path of a pure PAYGO plan is co-incident with the time axis in these diagrams.

19. Pension plans by custom or legislation do not normally incur large scale liabilities to non-members.

20. One known example occurs in the history of the Canada Pension Plan (CPP). On inception of the plan its sponsor, the Government of Canada, agreed to invest the assets in especially issued non-marketable obligations of the nine participating provinces. The provinces cheerfully spent the money they received in the accumulation phase of the plan. As the cash flow of the CPP was about to turn negative, and their I.O.U.'s had to be redeemed, the provinces faced the prospect of drastic expenditure cuts and/or tax increases on top of the already strained finances characterizing the eighties. Those in charge of the affairs of the Government of Canada apparently found it easier to raise contribution rates, pointing to the widely known but in this immediate context irrelevant, fact of the aging population, than to accept the political cost of having to shoulder the blame for the financial difficulties of the provinces. One reader

of the first draft of this paper advises me that the architects of
the CPP were aware of the problems to come, and informed the parti-
cipating governments early.

Other examples of non-fungible assets may include the sponsoring
government's own bonds, the securities of private firms which turned
to the government as a lender of last resort, and assets owned for
reasons unrelated to pensions.

21. The distinction between quasi PAYGO and real PAYGO rests on the fact
of the eventual fungibility of the assets. With quasi PAYGO no
generation gets a free ride at the beginning of the plan, and no one
is cheated when the plan is phased out. There is an extra burden in
the form of additional contributions when these are resorted to pro-
vide cash in lieu of liquidating assets, but there may be relief for
the contributors when the fungibility of the assets re-emerges.
Quasi-PAYGO thus produces inter-temporal, though if the time-period
is short enough, not necessarily inter-generational redistributions
of income during the life of the plan.

22. The obvious analogy is to a game of musical chairs where players
are walking at the beginning, but, contrary to the customary rules,
are allowed to sit before the music stops. Someone is likely to be
squeezed out while the music is still playing, but when exactly that
occurs, depends on the expectations and conduct of the players.

23. Imminent benefit recipients can be expected to provide lobbyists
promoting the initiation or the expansion of PAYGO schemes at all
times. The lobby for FUN, as opposed to PAYGO, is likely to be
weak and ineffective, because the benefits are remote and the case,
no matter how strong, is hard to explain. This may be one reason
for the prevalence of PAYGO in industrialized parliamentary demo-
cracies.

BOOK REVIEWS

Joshi, Jigbar (1985); Regional Strategy for Development: A Case Study of Nepal. (Kathmandu: Lajmina Joshi), p. x + 200 including bibliography.

Jigbar Joshi's book appears as the third in a series of attempts to evaluate Nepal's regional development strategy and present a framework for regional planning in Nepal. Shrestha and Jain (1978) and Pant and Jain (1980) had previously approached the regional development question from an economic perspective. Joshi attempts to deal with issue as a physical planner. The purpose of the book, in the author's own words, is to present "a comprehensive spatial/regional framework for development in the context of Nepal."

The book is a revised version of the author's doctoral dissertation. It is divided into six chapters. The first part of the book (Chapter 1 through 3) concentrates on the concepts and theory of regional planning and provides an overview of Nepal's planning efforts. The second part (Chapters 4 through 6) is devoted to a review of Nepal's regional development strategy and the author's conception of what it should be. In this part is outlined what the author calls a "comprehensive spatial/regional framework for development" in Nepal. The framework posited by the author is essentially based upon, and is intrinsic to the growth axes/growth centre proposition so cogently put forward by Gurung some 18 years ago. The author's contribution lies in the elaboration of the growth centre/growth axes proposition in terms of the development of an integrated hierarchy of settlements.

The discussion of the conceptual and theoretical aspects of regional planning attempted in the first part of the book suffers from some conspicuous lapses. The potentially useful notion of "agropolitan development" (Friedman and Douglas) as a regional planning strategy in agrarian countries like Nepal does not find even a mention in the book. Similarly, the dependency paradigm which goes beyond a simple exposition of the centre-periphery and brings a whole host of structural elements into the consideration of regional development and planning remains unexplored. As a consequence one of the major issues of regional planning in Nepal, namely, the extent to which spatial strategies have the potentiality to transcend structural limitations and induce the process of intrinsic growth and development in an entrenched dependency context is completely bypassed.

The growth axes/growth centre proposition made its entry into the Nepalese planning arena as an appendix to the Fourth Plan. It is an irony that it remains so still. The idea of regional planning derived its intuitive as well as substantive appeal from the disparity existing between natural regions. The development regions were then conceived as planning regions where this question of disparity among natural regions (within a development region) could be better addressed. A development region was deemed as a theatre where the twin objectives of national economic integration and speedy economic growth through the judicious use of regional resource potentialities could be actualised. The growth axes were proposed as much more than simple lines of transportation linking specific locations in each natural region within a development region. The underlying idea was to complement the growth axes

by a series of location-specific investment policies and programmes based on a detailed analysis of regional economic structures. The development of a hierarchy of different order settlements was therefore an intrinsic part of the growth axes proposition. The fact that even after 18 long years we are still toying with the idea but refraining from preliminary actions (like studies in regional economic structures) speaks volumes about the efficiency and commitment of our planning machinery.

Joshi favours the growth centre strategy in terms of the contribution it can make to the establishment of an integrated spatial order of settlements. While the framework of regional development proposed by Gurung (1969) highlighted the ordered growth of settlements along the growth axes, Joshi views it in broader regional terms. Besides the national capital he identifies five levels of central places from the central village to the regional development centre. The exercise of regional planning consists of planning for infrastructure and growth elements to facilitate the development of a functionally integrated hierarchy of such central places in each development region. As a spatial strategy the idea is attractive though there is nothing novel about it. The difficulty lies with the economics of implementing such a strategy. The first problem is one of identifying natural central places and planned central places in respective resource contexts. The second problem is that of deciding on the package of investment required to make the higher order central places functional. It is here that the difficult tradeoff between the efficiency and equity objectives will have to be made.

A spatial development strategy divorced from the resource realities of the region rarely makes sense. Lessons need to be learned from the development scenario that has unfolded in Nepal in the past six plans. An inescapable lesson is that infrastructural development by itself does not seed growth, though one can cogently argue for infrastructural development as an end in itself in the context of the Nepalese hill and mountain region. The resource base of the region determines both the extent to which planning interventions yield desired results, and the extent to which a hierarchic development of central places becomes feasible. In terms of having an understanding of the resource base and the economic structures of the different regions, unfortunately, we do not seem to be in any better ground today than we were 18 years ago. The author's strategy for regional development, in this sense, is as ad hoc a strategy as any proposed before it. The author should nevertheless be commended for making an attempt to highlight the implications of the growth centre proposition for the development of a regional settlement system. Too often economist planners tend to forget that the parameters elegantly set in equations of economic growth find their true expressions in the clumsy linkages between a remote hamlet and a village.

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